

CLAIMS

What is claimed is:

1. A microchannel plate comprising:
a plurality of laminated layers, each of said laminated layers having a plurality of channels formed therein,
wherein the block is sliced to a specified plate thickness.
2. The microchannel plate of claim 1, wherein said channels are tapered at said desired plate thickness.
3. The microchannel plate of claim 1, wherein said channels are tapered so that a funneling effect is attained.
4. The microchannel plate of claim 1, wherein said channels are buried.
5. The microchannel plate of claim 1 wherein said channels are diamond shaped.
6. The microchannel plate of claim 1 wherein said channels are U-shaped in cross-section.
7. A method of manufacturing a microchannel plate structure on a substrate, said method comprising the steps of:
selectively bonding a first layer to said substrate;

forming channels in said first layer;
attaching a handle to said first layer; and
cleaving said substrate.

8. The method of claim 7, further comprising the steps of:
repeating the steps for a second layer.
9. The method of claim 8 further comprising the steps of:
bonding said first layer to said second layer.
10. The method of claim 9, further comprising the step of:
slicing said bonded structure in the direction of the cross section of the channels.
11. The method of claim 10, further comprising the step of:
slicing said bonded structure in the direction of the cross section of the channels.
12. A method of manufacturing a microchannel plate structure, said method comprising the steps of:
providing a substrate;
selectively creating strong bond regions and weak bond regions on said substrate;
providing a first bonded layer and a substrate layer;
forming channels in said first layer;
attaching a handle to said first layer;

cleaving said substrate;
repeating said forming, attaching and cleaving steps for a second layer; and
bonding said first layer to said second layer.

13. The method of claim 12 wherein said substrate is a multi layer substrate.
14. The method of claim 13, further comprising the step of:
slicing the bonded structure in the direction of the cross section of the channels.
15. A Biochip array comprising:
a CCD array;
a phosphor screen supported by said CCD array;
a micorchannel plate supported by said phosphor screen;
a photocathode supported by said microchannel plate; and
an array of biochips supported by said photocathode.
16. The Biochip array of claim 15 wherein said microchannel plate is aligned with
said array of biochips.
17. The Biochip array of claim 15 wherein said microchannel plate has sub micron
spacing.

18. The Biochip array of claim 15 wherein detection of fluorescent signals at the CCD array is accomplished in parallel.